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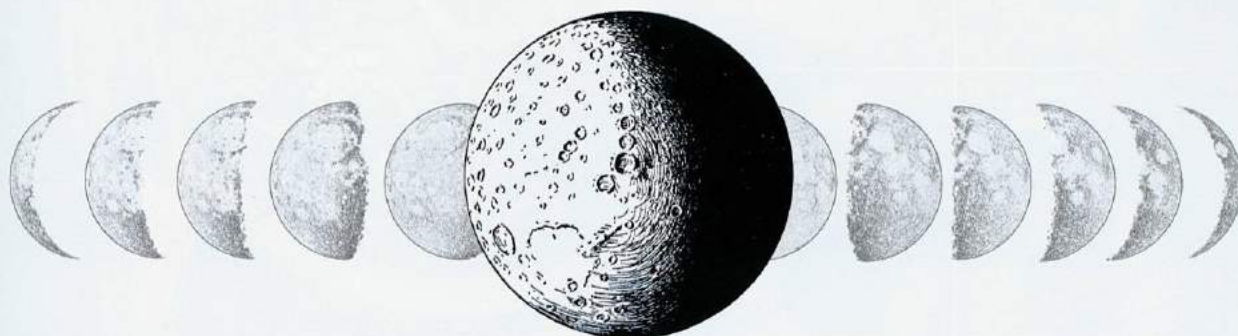


IN THE FULLNESS OF TIME



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MOONS



How many moons...

What is there left to say about the moon that hasn't already been said a hundred times, or a thousand, since the dawn of time? The moon is a nocturnal clock. The moon is a calendar. But the moon is also – and perhaps most importantly – the nearest celestial object to the Earth, which makes it the easiest to observe, and also the most mysterious. How many fantasies, stories, tales, legends, sagas, imaginary voyages, dreams, representations and poems has it inspired?

The watch community has added more than its share to the treasury. From its very beginnings, horology has sought ways to transcribe the rhythm, the cycles, the seasons and the waxing and waning of the moon. If the sun was our first clock, the moon was our second. It may tell us little about hours and minutes, but it anchors us to far deeper cycles. For how many moons did Ulysses travel the seas?

Leaving aside the mathematical achievements that gave watchmakers the ability to measure the lunar cycle, the moon also exerts a poetic influence over watchmaking. The moon is beautiful, mysterious and fascinating. Its surface can be represented in gold, stone, mother-of-pearl or lacquer, and

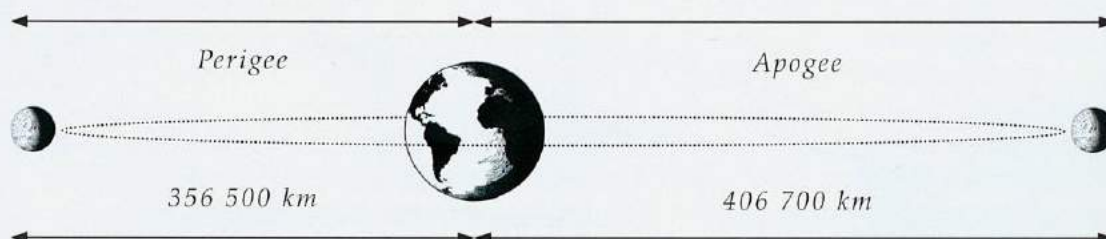
its pale lustre can be reproduced with diamonds. It brings a dash of poetry to the rigour of a watch dial. The moon gives horology a touch of soul.

Phases of the moon

One of the main reasons watchmakers are attracted to the idea of representing the moon is because of the beauty and cosmic regularity of its cycles: new moon, waxing crescent, first quarter, waxing gibbous, full, waning gibbous, third quarter and waning crescent. The lunar cycle offers a series of expanding and contracting shapes that can be read like a code, indicating the "lunar time" throughout the period. At the very least, it gives the wearer the ability to enjoy the journey from moonrise to moonset.

Where the moon is concerned, time becomes space.

Down on earth we can observe the march of time, the passing hours, in the motion of shadows across the floor. When we raise our eyes to the night sky and see how much of the moon is illuminated by the sun, we are doing exactly the same thing. Except this time, rather than one day, the cycle takes around 29-and-a-half days.





THE MOON VERNIER SCALE SHOWS:

- 1 New moon – zero hours
- 2 5 days 18 hours (yellow scale)
- 3 27 days 3 hours (blue scale)
- 4 Full moon (2 red indicators together)

USING THE MOON VERNIER IS STRAIGHTFORWARD:

1. The red arrow indicates the age of the moon in days.
 2. If the arrow points to a number in the blue sector of the outer scale, the accurate value is also read from the blue sector of the inner Vernier ring. The age of the moon accurate to three hours is indicated where the next mark on the Vernier ring aligns with a mark on the outer ring.
 3. These hours are added to the days indicated on the outer ring.
- In the same way, if the red arrow indicates a day on the yellow sector of the outer scale, the hours are also read from the yellow sector on the Vernier scale.

High-precision moons

The lunar cycle, the “synodic period”, is the time taken by the moon to return to the same configuration, i.e. to the same position in the sky in relation to the sun, as seen from Earth.

The synodic period of the moon, known as the synodic month, which is the period that separates two full moons or two new moons, is exactly 29.530588853 days.

And that’s a real mathematical headache for any watchmaker trying to accurately transcribe this cycle mechanically.

Let’s hear what one great lunar specialist, watchmaker **Andreas Strehler**, who was recently nominated for the Grand Prix d’Horlogerie de Genève for his latest creation,



LUNE EXACTE BY ANDREAS STREHLER

“The watch dial has a conventional moon phase display along with an additional indication via the Vernier scale at 6 o’clock. An arrow on this precision scale indicates the age of the moon in days. Two red marks indicate the full moon and the new moon. The Vernier scale’s inner ring enhances precision even further, taking it to three hours.”

Lune Exacte, has to say about the subject. His Sauterelle à lune perpétuelle, which loses just one day after “approximately” 2.045 million years, has already earned him an entry in the Guinness Book of World Records.

We can conclude that he knows what he’s talking about.

“A moon phase display that is termed ‘precision’ or ‘astronomical moon’ deviates from the synodic period by one day in 122 years. With the Sauterelle à lune perpétuelle, this deviation has been reduced to a little over two million years. But all moon phase indications have the same problem: however precise they are, they can’t be read precisely. Apart from the new moon and full moon, the person wearing the watch more or less has to guess the exact phase or age of the moon. Similarly, they have to wait for the new moon or full moon to adjust it correctly.”

Andreas Strehler’s new Lune Exacte provides a solution to this drawback.

The age of the moon can be read with far more granularity, both in days and, thanks to a Vernier scale, in 3-hour periods. On the principle that it’s easier to see when two marks coincide than to measure very small increments, the Vernier scale considerably improves the legibility of an analogue scale.



**THE 6104R-001 CELESTIAL GRAND
COMPLICATION by Patek Philippe**

The 6104R-001 is one of the most beautiful and accurate celestial watches ever produced. It features a unique blue dial that includes a microscopically accurate star field disc. This celestial watch with date features

hours and minutes of mean solar time, sky chart, phases and orbit of the moon, time of meridian passage of Sirius and of the moon. The 44 mm 18K white gold case is set with 38 baguette diamonds.

First moons



**JEAN-BAPTISTE DUBOULE,
SILVER CASED COACH WATCH
WITH HOUR STRIKING, ALARM AND
LUNAR AND CALENDAR INDICATIONS,
C. 1645–1655**

The upper right-hand dial shows the synodic revolution of the moon. The chapter ring marking the divisions is fixed, but a richly engraved disc in its centre rotates, while a fleur-de-lys-shaped pointer indicates the age of the moon. The moon phases appear in a cutout inside this disc, which performs one revolution every 29.5 days.

The chapter ring of the left-hand dial is divided into thirty, not thirty-one. In a sector aperture on this dial the sun, the moon and the five planets known to the Ancients appear in order – Mars, Mercury, Jupiter, Venus and Saturn – representing the seven days of the week; the sun for Sunday, the moon for Monday, Mars for Tuesday (*mardi*), etc.

The disc bearing the names, along with illustrated figures, rotates in the centre of the watch. On the upper part of the dial a triangular aperture shows the month of the year along with the corresponding zodiac sign. Two further apertures on the lower left and right display allegorical figures. The sector on the left performs one rotation per day, showing dawn, midday, dusk and night. The right-hand aperture performs one revolution per year, displaying the four seasons. The lower dial is an alarm. The outer chapter ring bears the hours in engraved Roman numerals, clockwise from the top, and the internal rotating disc is carved with Arabic numerals in an anti-clockwise direction.

Here's a bit of history.

The first astronomical clocks and spheres emerged in France and Germany in the 16th century. But it appears that it wasn't until the early 17th century that the first "moon movement" clocks, as they were called, began to appear. Julien Coudray, a clockmaker working in Blois in France in the 1500s, was probably one of the trailblazers, along with the clockmakers of Lyon. When France sent its Protestants into exile, Geneva became a watchmaking hotspot, specialising in "moon movements". The city archives contain a number of documents that bear witness to this remarkable expertise. A notarial deed from 1671 records an order placed with watchmaker Abraham Arlaud for "Fifty timepieces with moon movement of a mutually agreed size (...) All pieces of said work to be finished and adjusted to perfection, with silver ratchets and cocks, silver chapter rings, polished upper and lower plates and shaped spindles. And this in consideration of the sum of nineteen silver écus per piece." Fifty pieces was a handsome order for a clockmaker capable of producing just four a month in his workshop, with his team of clockmakers.

But you can't put a price on the moon.

One of the finest examples of these clocks, which were revolutionary for their time, can be found in the British Museum in London. It is attributed to Jean-Baptiste Duboule (1615–1694), and stands as testimony to the artistic excellence and astronomical prowess of the time.



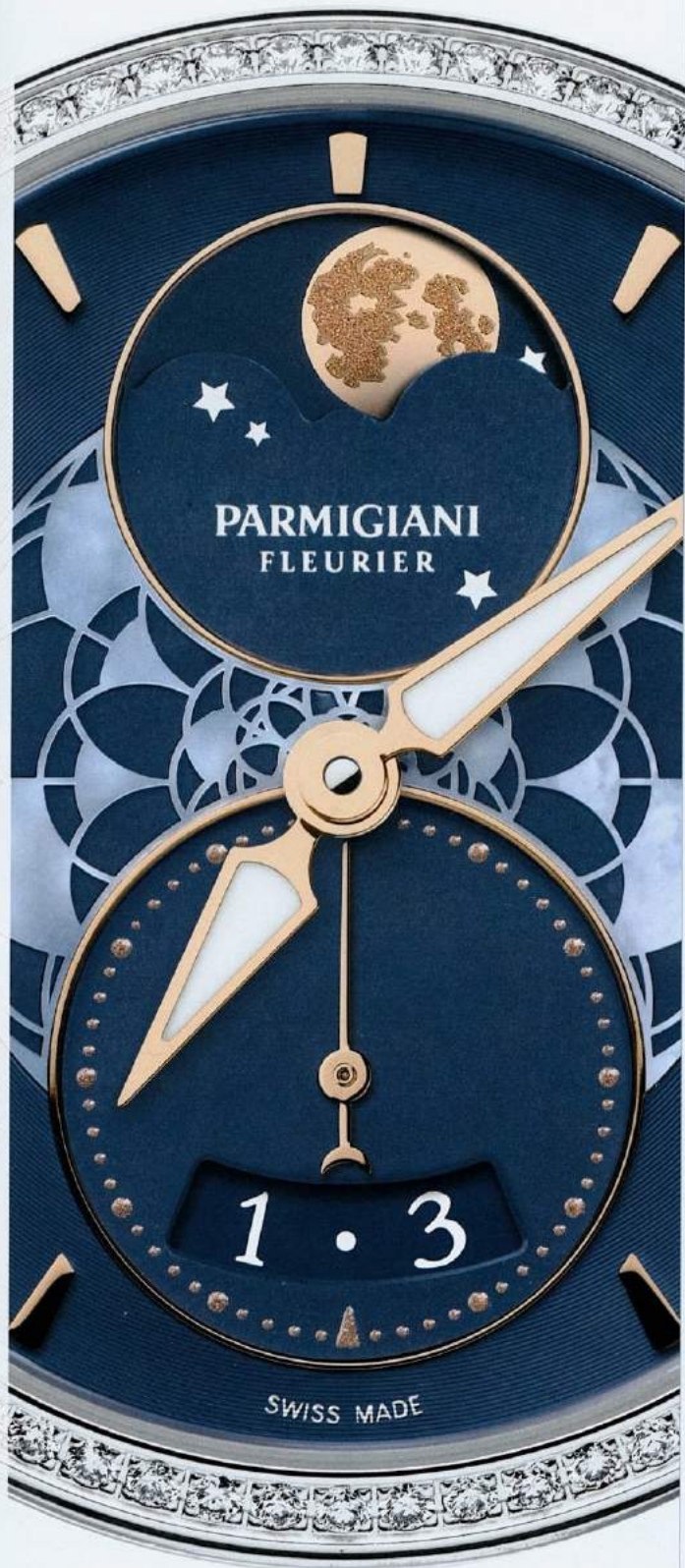
Blood moons

Astronomically, a blood moon is an optical phenomenon caused by the diffraction of light. When the moon sits low on the horizon, the light that reflects from it has to pass through the thickest part of the earth's atmosphere, lending it a reddish hue.

Blood moons or harvest moons are the subject of many legends. The moon also attracts its lunatics.

TONDA MÉTROPOLITAINE SÉLÈNE by Parmigiani

In addition to the conventional approach – two discs which appear and disappear behind the wisps of a cloud – a series of elegant details give this moon a dreamlike quality. Bronze in colour rather than the traditional gold, its exceptionally brilliant surface shows traces of the lunar craters known as "maria", formed by a highly complex layering of decals. The complication module has a push-piece at 9 o'clock enabling the moon to be indexed independently of the time and day, in order to match its phases to the geographic location of reference. This correction function has a safety system which protects the gear from accidental movement.



Enlightenment moons

ROTONDE DE CARTIER DAY AND NIGHT RETROGRADE MOON PHASE

From left to right, from dawn to dusk, the sun and moon follow each other across the upper part of the dial. This dynamic display is accompanied by the retrograde motion of a hand indicating the phases of the moon, from the first to the last crescent, in the lower part of the dial.

To bring out the very best in this complication, Cartier has designed a deep blue lacquered dial flecked with gold, across which the diamond- and sapphire-paved moon phases parade.





Gibbous moons

The term "gibbous" comes from the Latin *gibbus*, meaning "hump". The moon is termed "gibbous", whether it is waxing or waning, when the visible lit surface covers more than half of its disc. It is at that point where it is the easiest to visualise the moon as a sphere rather than a flat disc.

The watchmaker who has most successfully and poetically interpreted the gibbous moon is probably **De Bethune**, with its superb three-dimensional moons.

DB25 JEWELLERY BY DE BETHUNE

This creation is distinguished by the many ways in which the light plays across the materials and the complex dial architecture: the dark gleam of hand-polished and blued titanium, the sparkling twinkle of the white gold and diamond stars, and the muted glow of the curved blued steel hands. The depth of the star-studded sky is revealed through the alternating curves that are convex on the outside for the chapter ring, and concave in the centre. A spherical moon set with sapphires and diamonds shines at 12 o'clock, providing an exceptionally accurate moon-phase display that will diverge from astronomical reality by just one day in 122 years.

HM DOUBLE HEMISPHERE PERPETUAL MOON BY ARNOLD & SON

For the first time, the HM Double Hemisphere Perpetual Moon displays the moon phases as they can be seen from both the northern and southern hemispheres, all in a single watch. The exceptional perpetual moon phase indication of this watch is a marvel in many ways. From an aesthetic point of view, the 29 mm moon phase disc, which runs from 10 to 2 and 4 to 8 o'clock on the dial, reveals not one but two of the largest moons on the market, with a diameter of 11.20 mm for the moons alone. While the first aperture displays the moon phase as seen in the northern hemisphere, a mirror image of the moon phase also shows the state of the moon in the southern hemisphere. Additionally, these large moons are one of the most visually stunning recreations of the moon because they are three-dimensional sculpted moons that are then duplicated for the series. These two sculpted moons are first hand engraved and then inserted into the disc.



Marine moons

One of the moon's most spectacular effects on the Earth is the gravitational pull that governs our ebbing and flooding tides. It's not the only thing responsible for the motion of our oceanic clock, because the gravity of the sun and the earth's rotational inertia also play a part. But the moon, our nocturnal satellite, appears to reign over the waters and their mysterious comings and goings.

Clockmakers through the ages have also naturally been drawn to the challenge of finding a mechanical way to transcribe the regular movements of the oceans. For the first time, Christiaan van der Klaauw, a renowned specialist of astronomical and lunar timepieces, offers a precise visualisation of the mysterious influence of the moon on our planet.

CHRISTIAAN VAN DER KLAUW REAL MOON TIDES

Above a rotating miniature moon, the Real Moon Tides carries a complication showing sea level tides in a way never before seen in a mechanical watch.

Tides are the rise and fall of sea levels caused by the combined gravitational forces exerted by the moon, the sun, and the rotation of the earth. There are multiple types of sea tides.

In most locations you will find the 'principal lunar semi-diurnal' sea tide. The period for one rise and fall of sea level is roughly 12 hours, 25 minutes and 14 seconds. Waves move up and down in a special window to make this beautiful phenomenon visible.

At the 6 o'clock position a rotating 3-dimensional real moon – indicating the true moon phase – is shown. The moon rotates around the earth every 29.5305889 days. This handmade 3D miniature moon indicates the moon phase so accurately that it deviates only one day in 11,000 years. It is the most accurate 3D moon phase in the world ever incorporated in a mechanical watch.



Metronomic moons

PATRIMONY MOON PHASE AND RETROGRADE DATE by Vacheron Constantin

Appearing on a pink or white gold disc, depending on the version, the moon gleams brightly against a star-studded backdrop, visible through an opening in the lower half of the dial. The age of the moon – meaning the number of days that have elapsed since the last new moon – can be read off a graduated scale around this opening. This lyrical complication is displayed with extreme accuracy in accordance with the real lunar cycle around the Earth, which lasts 29 days, 12 hours and 45 minutes. This sophisticated mechanism requires a one-day correction just once every 122 years. The retrograde date display appears in the upper half of the dial. A central hand moves forward in one-day increments. Once the month is completed, a retrograde system returns it instantly to its initial position opposite the number 1, whence it repeats the cycle.

SLIMLINE MOONPHASE MANUFACTURE by Frédérique Constant

The dial features central hour and minutes hands and a detailed moon phase and date counter complete with an illustration of the moon and stars. The balanced 42 mm case along with the uncrowded dial make telling time a simple pleasure. The automatic manufacture calibre FC-705 is developed, manufactured and assembled entirely in-house. The particularity of this movement is that all functions are adjustable via the crown – no added push button – for a smoother, more comfortable functionality.





JULES COLLECTION REFERENCE 2340
by Urban Jürgensen

Reference 2340 is crafted from white gold and, together with small seconds, date and power reserve, it displays a beautiful moon phase indication at 12 o'clock.

The moon disc, rigorously made by hand, is crafted from mirror polished blued steel. Recesses for the stars are then punched or etched into the steel. Pure gold in powder form

is then deposited into the cavities for the stars and melted into place to form a solid gold inlay. Finally, the two solid gold moon discs with mirror polished surfaces are press-fitted into corresponding holes in the disc to complete the dual image of two sets of moons with stars. Consider that it takes more than 20 different operations to create a single Urban Jürgensen moon disc.



Mother-of-pearl moons

Mother-of-pearl, extracted from the briny deep and cut from moon-shaped shells, could almost have evolved specially to represent the moon on our watch dials, with its *moiré* pallor, its gently uneven surface and its exquisite soft glow.

RENDEZ-VOUS MOON 36MM by Jaeger-LeCoultre

The mother-of-pearl crescent of the Rendez-Vous Moon bears a stylised hours arc distinguished by elongated numerals. It tops a dial affording a captivating vision of the heavenly canopy and occupies almost half the dial. The deep blue sky reveals the constellations and shines with a sprinkling of sparkling diamonds. The main highlights of this model, meaning the display of the passing hours and the moon complication, thus divide up the available territory in a spirit of perfect equity – very much like the Rendez-Vous Moon as a whole, in which technical and aesthetic elements play an equally important part.

PANOMATIC LUNA
by Glashütte Original

A silvery moon appears on a pale blue mother-of-pearl dial, and diamonds sparkle like stars in the sky. The iridescent, shimmering blue mother-of-pearl dial on the new PanoMatic Luna, the product of elaborate manual craftsmanship, is made by the manufacture's own dial maker in Pforzheim.

In order to achieve precisely the right colour, the back of the delicate white base material is coated with a layer of lacquer. The naturally textured variation of mother-of-pearl lends the dial additional character, making each watch utterly unique.

The softly curving moon relief appears against a starry silver-coloured sky. Its curves emerge as the result of careful, skilfully executed diamond milling, which gives it greater visual depth. At once traditional and artistic, the display at 2 o'clock represents an authentic rarity in a mechanical ladies' watch.



The **PREMIER MOON PHASE 36MM** by Harry Winston captures the serene beauty of the celestial sky, with a mesmerising moon that appears to travel across the horizon, before finding its way behind a white mother-of-pearl design, signifying the end of the lunar cycle.

The lunar cycle, hours, minutes and date display are expertly powered by the HW5201 quartz movement exclusive to Harry Winston. The migration of the moon is visible through a crescent-shaped opening, while the hour and minutes are indicated by elegant bevelled hands. An open circle at 6 o'clock, adorned with a yellow gold border, reveals the date.



Glowing moons

GRAND LANGE 1 MOON PHASE «LUMEN»

by A. Lange & Söhne

Different from Lange's previous moon-phase models with solid-gold lunar discs, the GRAND LANGE 1 MOON PHASE "Lumen" has a disc made of glass. Initially, its surface is treated with a patented coating process. In a second step, a laser is used to cut out 1164 stars and the moon. Thanks to the luminous compound behind the lunar disc, they shimmer with vibrant radiance. The large moon-phase display occupies a prominent position on the main dial. Once properly set, it only needs to be corrected by one day every 122.6 years.

Fabulous moons

The eminent Finnish watchmaker Stepan Sarpaneva has created one of the most captivating moons in watchmaking. His world draws from childhood fairy tales of Nordic forests, Arctic nights and northern lights.

Realising that his skeletonised dials were suggestive of forests, or a cloudy night sky, he told himself, "Putting the moon under this dial would allow you to actually 'see' the moon approaching its phases through the branches of a night-time forest, perhaps..."

But why this enigmatic face with its strange half-smile, half-grimace, which has become the company's signature?

"Everyone here in Finland floats around with an aura of slight melancholy. So a smiling moon was out of the question. Instead, I decided to give the moon an aura of aristocratic melancholy, with a bit of indecision to whether he is happy or sad in nature. The expression of the moon on the Korona K3 just is – the same as the people here."

KORONA KOSMOS by Stepan Sarpaneva

Soprod A10 base calibre, modified and totally re-finished starting from the main plate, which is gilded after hand-finishing. The separate moon phase mechanism is designed and manufactured entirely in Helsinki and features a unique Sarpaneva innovation: correction via the crown, rather than a pusher on the side of the case.

